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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/823,069
Filing Date: April 13, 2004
Appellant(s): DUNKO, GREG A.

Elizabeth A. Stanek
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/01/2007 appealing from the Office action mailed 03/07/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US Patent#6862432	Kim	03-2005
US2004/0185920	Choi et al.	09-2004
US2004/0110541	Choo	06-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 3, 5-7, 9, 11-14, 16, 18-20, 22, 24 and 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (US Patent#6862432).

Regarding claim 1, Kim anticipates a portable electronic device, comprising:

a housing (Fig. 5);

an antenna associated with the housing (76 of Fig. 5); and

a multi-mode matching circuit operatively associated with the antenna (50 of Fig. 1), the multi-mode matching circuit being configured to operate in a first mode when the housing of the portable electronic device is in a first configuration and in a second mode when the housing of the portable electronic device is in a second configuration (column 2 lines 8-18); and

a sensor (20 of Fig. 1) operatively associated with the multi-mode matching circuit, wherein the sensor is configured to detect the first configuration of the housing of the portable electronic device and/or the second configuration of the housing of the portable electronic device and wherein the multi-mode matching circuit is configured to adjust at least one parameter of the multi-mode matching circuit responsive to the first and/or second detected configurations of the housing of the portable electronic device, and wherein the at least one parameter is stored in a lookup table (column 5 lines 18-64); and

a processor (30 of Fig. 1) operatively associated with the sensor, the processor being configured to locate the at least one parameter in the lookup table using the first and/or second detected configuration of the housing of the portable electronic device as a pointer for an entry in the lookup table (column 4 lines 2-12).

Regarding claim 7, Kim anticipates a mobile terminal as explained in the response to claim 1 above.

Regarding claim 14, Kim anticipates a method of operating a portable electronic device as explained in the response to claim 1 above.

Regarding claim 22, Kim anticipates a method of operating a portable electronic device as explained in the response to claim 1 above.

Regarding claims 3, 9, 16 and 24, Kim anticipates the limitations of claims 1, 7, 14 and 22. Kim anticipates the multi-mode matching circuit comprises an impedance matching circuit and wherein the at least one parameter of the multi-mode matching circuit comprises a resistance, a capacitance and/or an inductance (column 4 lines 34-43).

Regarding claims 5, 11, 19 and 27, Kim anticipates the limitations of claims 1, 7, 14 and 22. Kim anticipates a timer circuit operatively associated with the sensor, wherein the sensor is further configured to detect the first and/or second configuration of the housing of the portable electronic device responsive to expiration of the timer circuit (magnetic sensor, column 5 lines 23-26). Note that a magnetic sensor is a hall effect sensor that detects magnetic field change periodically, which means the magnetic sensor associates with a timer and operates periodically or repeatedly.

Regarding claims 6, 12 and 29, Kim anticipates the limitations of claims 1, 7 and 28.

Kim anticipate a portable electronic device having a flip configuration, wherein the housing of the portable electronic device is in the first configuration when the portable electronic device is open and wherein the housing of the portable electronic device is in the second configuration when the portable electronic device is closed (Fig. 5).

Regarding claim 13, Kim anticipates the limitation of claim 7.

Kim anticipates a retractable antenna, wherein the antenna is in the first position when the retractable antenna is retracted and wherein the antenna is in the second position when the retractable antenna is extended (Fig. 7A).

Regarding claims 18 and 26, Kim anticipates the limitations of claims 14 and 22.

Kim anticipates detecting a configuration of the housing of the portable electronic device further comprises repeatedly detecting the configuration of the housing of the portable electronic device responsive to a detected change in position of the housing as explained in the response to claim 5 above.

Regarding claims 20 and 28, Kim anticipates the limitations of claims 14 and 22.

Kim anticipates operating the multi-mode matching circuit in a first mode when the detected configuration is a first detected configuration; and operating the multi-mode matching circuit in a second mode when the detected configuration is a second detected configuration (column 5 lines 21-64).

Regarding claim 30, Kim anticipates the limitation of claim 28.

Kim anticipates a retractable antenna, wherein the antenna is in the first detected position when the retractable antenna is retracted and wherein the antenna is in the second detected position when the retractable antenna is extended (Fig. 7A, column 6 lines 23-33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 31-33 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent#6862432) in view of Choi et al. (US2004/0185920).

Regarding claim 31, Kim teaches a portable electronic device, comprising:

a housing (Fig. 5);

an antenna associated with the housing (76 of Fig. 5);

a multi-mode matching circuit operatively associated with the antenna, the multi-mode matching circuit being configured to operate corresponding to respective first through second configurations of the housing (column 2 lines 8-18).

But, Kim does not expressly disclose there are at least three configurations of the housing with corresponded three modes.

However, Kim teaches having combinations of casing and antenna configurations in at least three modes for configuring matching circuit (column 7 lines 9-30), which can be considered as at least three housing configurations.

Choi et al. teach a foldable phone actuates internal circuit function according to one of at least three opening positions detected by magnetic sensors (paragraphs 0010, 0021-0025, Table 1), which further demonstrate that a foldable phone like Kim's can provide at least three housing configurations for actuating internal circuit functions.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate at least three opening positions and modes taught by Choi et al. into the portable electronic device of Kim, in order to provide more modes with auto-detection.

Regarding claim 35, Kim and Choi et al. teach a method of operating a portable electronic device as explained in the response to claim 31 above.

Regarding claim 32, Kim and Choi et al. teach the limitation of claim 31.

Kim and Choi et al. teach a portable electronic device having a jack-knife configuration, wherein the first through third configurations of the housing of the portable electronic device correspond to different positions of the portable electronic device having the jack-knife configuration as explained in the response to claim 31 above.

Regarding claims 33 and 36, Kim and Choi et al. teach the limitations of claims 32 and 35.

Kim teaches a sensor operatively associated with the multi-mode matching circuit, wherein the sensor is configured to detect the first through third configurations of the housing of the portable electronic device and wherein the multi-mode matching circuit is configured to adjust at least one parameter of the multi-mode matching circuit responsive to the first, second and/or third detected configurations of the housing of the portable electronic device, and wherein the at least one parameter is stored in a lookup table (column 5 lines 18-64); and

a processor operatively associated with the sensor, the processor being configured to locate the at least one parameter in the lookup table using the first, second and/or third detected configuration of the housing of the portable electronic device as a pointer for an entry in the lookup table (column 4 lines 2-12).

3. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent#6862432) in view of Choi et al. (US2004/0185920) and Choo (US2004/0110541).

Regarding claim 34, Kim and Choi et al. teach the limitation of claim 31.

Choi et al. teach a camera configured to protrude from the portable electronic device during camera functionality and to retract when not in use (250 of Fig. 1E, where protruding a camera from a blocked view into full exposure).

But, Kim and Choi et al. do not expressly disclose the first through third configurations of the portable electronic device correspond to relative positions of the camera.

Choo teaches a camera rotates with respect to a hinge wherein sensor is in detection of camera rotational position (Figs. 2-3, paragraphs 0015-0017).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the portable electronic device of Kim and Choi et al. into having magnetic sensor in detection of camera position taught by Choo, in order to provide detection signal to configure matching circuit.

(10) Response to Argument

Appellant's arguments with respect to Kim (US Patent#6862432) on claims 1, 7, 14 and 22 have been fully considered but they are not persuasive.

(Independent Claims 1, 7, 14 and 22) The appellant argued that Kim does not anticipate the claim because Kim's reference directs to store voltages instead of parameters. In stark contrast, appellant claimed invention include digitally programmable resistor, inductors, or capacitors that are programmed based upon numerical values (parameters) stored in a lookup table. In other words, the parameters stored in the lookup table pointed to by the first and/or second detected configuration of the housing are the numerical values used to program the resistors, inductors and/or capacitors of the multi-mode matching circuit as needed.

In response to the argument, the examiner respectfully disagrees with the appellant's argument. Kim discloses a portable radio telephone configuring a multi-mode matching circuit according to a sensor detection of housing configuration (e.g. casing open/folded) of the portable radio telephone (column 1 line 61 to column 2 line 18). During configuration, a processor operatively associated with the sensor adjusts the capacitance of the matching circuit by varying a control voltage according to a parameter (voltage value) located in a lookup table (Table 1 in

column 7) in correspond to detected housing configuration (column 5 lines 16-64). Kim's invention matches appellant's claim 1.

Unlike appellant's interpretation, Kim does not teach storing voltage in a lookup table. Kim discloses storing **voltage value**/parameter (column 4 lines 5-8). Kim also discloses a configuration-parameter correspondence table stored in non-volatile memory (column 7 lines 9-30). Although appellant indicated that Kim discloses "The manufacturer of the portable radio telephone stores voltages for optimal antenna impedance matching both in a case opened condition and case closed condition to the non-volatile memory..." in column 5 lines 18-21, appellant misinterpreted Kim's meaning because one of ordinary skill in the art would know that non-volatile memory (computer memory that retain stored information even when not powered, which includes read-only memory, flash memory, magnetic storage device such as hard disk, optical disc such as CD or DVD and early computer storage methods such as paper tape and punch cards) does not store voltage but information. Moreover, appellant's claim does not specify in what format the parameter is stored in. In other words, appellant's claim does not distinct said parameter from being voltage. And one of ordinary skill in the art would know that voltage can be used as signal or parameter in application.

Regarding appellant's statement on configuration of digitally programmable resistors, inductors, or capacitors, claim 1 does not include such limitation. Nonetheless, Kim clearly discloses that the CPU of a multi-mode mobile station in response to a detected configuration and **reads the data** (parameters) stored in the non-volatile memory to control the DAC to provide a predetermined control voltage. The predetermined control voltage provided by the DAC can control capacitance of a variable capacitance diode or varactor of the matching circuit

in order to control the impedance matching of the matching circuit to suit detected configuration (column 5 lines 26-64). In other words, Kim teaches using programming a capacitor with a voltage outputted from a DAC controlled by CPU according to the parameter digitally read from non-volatile memory. This is the same as appellant's disclosed digitally programmable capacitor.

Thus, the rejection on claim 1 is proper. The same reasoning goes for claims 7, 14 and 22.

Appellant's arguments with respect to Kim (US Patent#6862432) and Choi et al. (US2004/0185920) on claims 31 and 35 have been fully considered but they are not persuasive. (Independent Claims 31 and 35) The appellant argued that the combination of Kim and Choi et al. is improper because Choi et al. fail to teach a multi-mode matching circuit being configured to operate in at least three modes.

In response to the argument, the examiner respectfully disagrees with the appellant's argument. First of all, Kim already discloses having the multi-mode matching circuit being configured to operate in at least three modes corresponding to respective first through third configurations of the housing (column 7 lines 9-30 and Table 1, where at least three parameters for configuring matching circuit; also in column 10 lines 1-18, Table 2), where depends on different combinations of casing and antenna configurations. For further demonstrating having at least three housing configuration for detection and preprogrammed circuit actuation, the examiner introduced Choi et al. as a secondary reference to show that the housing can provide at

least three different configurations (Fig. 1F, paragraphs 0021-0025, Table 1). Thus, it would have been obvious to one of ordinary skill in the art to recognize that housing can provide at least three configurations with or without antenna for detection and actuate circuit such as adjusting variable capacitance in light of Kim.

Thus, the rejections on claims 31 and 35 are proper.

Appellant's argument with respect to Kim (US Patent#6862432), Choi et al. (US2004/0185920), and Choo (US2004/0110541) on claim 34 have been fully considered but they are not persuasive.

(Dependent Claim 34) The appellant argued that Kim, Choi et al, and Choo fail to teach the limitation because Choo does not provide the teachings of a protruding camera that changes the configuration of the device.

In response to the argument, the examiner respectfully disagrees with the appellant's argument. First of all, appellant does not include any drawing to demonstrate how a camera being protruded. The only support found in filed specification is "a camera configured to protrude from the mobile terminal during camera functionality" in paragraph 0036 of the published application. According to definition from dictionary, protrude means to push outward. Both Choi et al. and Choo teach adjusting camera's eyehole position from being blocked inside the mobile terminal into having a full exposure outward through rotational pushing movement. So, it is considered as protruding a camera from the mobile terminal during camera functionality.

Thus, the rejection on claim 34 is proper.

For the above reasons, it is believed that the rejections should be sustained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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Respectfully submitted,


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